Percutaneous interventions in cardiology in Poland in the year 2017. Summary report of the Association of Cardiovascular Interventions of the Polish Cardiac Society AISN PTK and Jagiellonian University Medical College

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Data on interventional cardiology procedures have been published annually in Poland since the introduction of the national percutaneous coronary intervention (PCI) database ORPKI in 2004 [1–3]. The electronic data capture and constantly modified registry aiming to address the new challenges is operated by the Jagiellonian University Medical College, and 161 interventional cardiology centers in Poland have joined it as of 2018. Out of these 161 centers, 151 are formally accredited by AISN PTK and there are currently 570 PCI operators in Poland.

In comparison to 2016, there was a significant decrease in the total reported number of coronary angiographies in Poland. There were 198 362 angiographies reported in 2017 (a decrease by 7.6% compared to 2016) – Figure 1 – which makes it 5153 per 1 million inhabitants per year. This trend has been observed ever since 2015 and current numbers correspond to that of the year 2011. On the other hand, in 2017 we have observed another 2% increase in the use of the radial approach for coronary angiography (84%), also with high prevalence among ST-segment elevation myocardial infarction (STEMI) patients (75%). Complications of coronary angiography are still rare in 2017 and are presented in Table I.

The total number of reported PCI procedures was 114 282 and is lower than in 2016 by 6% (2983 PCIs per 1 million inhabitants per year) – Figure 1. A similar trend is observed as for coronary angiographies and the 2017 PCI number correspond to that of 2011. As many as 36% of these PCIs are performed for acute myocardial infarction (19% STEMI and 17% non-ST-segment elevation myocardial infarction (NSTEMI)), 30% for unstable angina and the remaining 32% for stable angina. The number of primary PCIs per 1 million inhabitants per year is currently 570 in Poland. When analyzing the subsets, there were 21 933 primary PCIs in the STEMI setting, 19 570 in NSTEMI and 34 627 in unstable angina, which is altogether 76 130 PCIs in ACS (67% of all PCIs in Poland in 2017).

Drug-eluting stents during PCI were used in 98% of cases with only 219 bioresorbable vascular scaffold (BVS) stents implanted (0.2% of all PCIs). A shift from BVS use to traditional metallic stents has been observed since 2016. Aspiration thrombectomy was rare and used in only 2505 STEMI cases, which corresponds to a 5% decrease in comparison to 2016. However, a substantial increase in use of guideline-recommended ticagrelor as an

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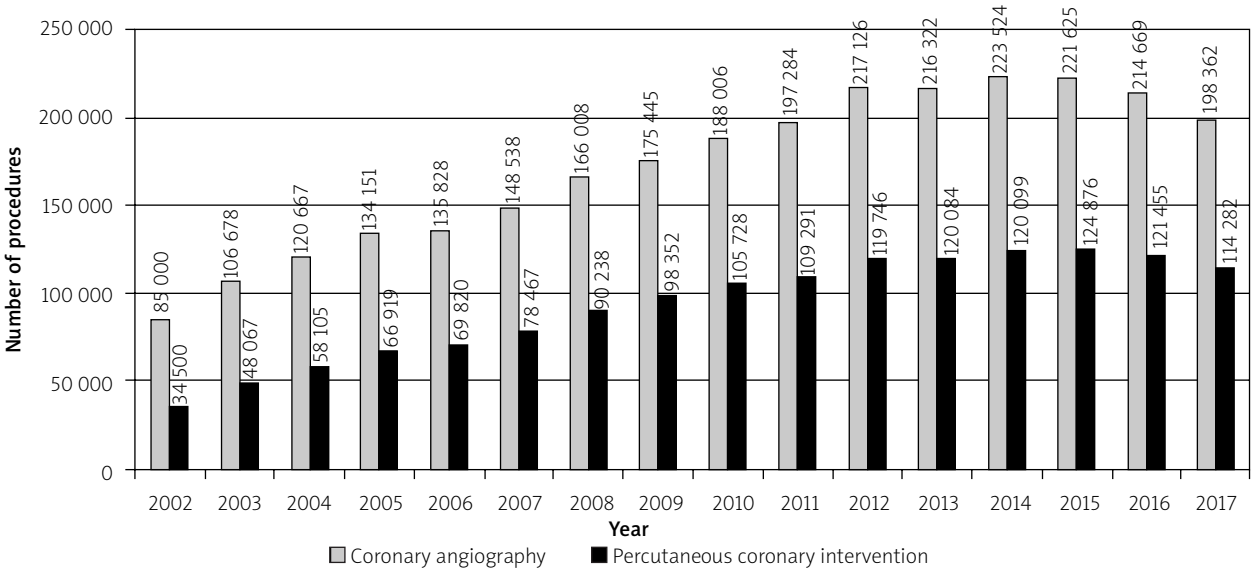

Figure 1. Number of coronary angiography (grey) and percutaneous coronary intervention (black) procedures in Poland in the years 2002–2017

Table I. Complications of coronary angiography in Poland in 2017

Parameter	Percentage	In comparison to 2016
Death	0.29	↔
Stroke	0.01	↔
Major bleeding at access site	0.03%	↔
Sudden cardiac arrest	0.4%	↑
Allergic reaction	0.1	↑

Table II. Complications of PCI in Poland in 2017

Parameter	Percentage	In comparison to 2016
Death:		↔
STEMI	0.44	
NSTEMI	1.22	
UA	0.57%	
SA	0.11	
Myocardial infarction	0.05	↔
Major bleeding from access site	0.09	↔
SCA	0.55	↑
Allergic reaction	0.13	↔
Artery perforation	0.16	↔
No reflow	0.48	↔

Table III. Additional intracoronary assessment in 2017 during angiography and PCI

Variable	*n*	Change % from 2016
FFR	8133	↑ 60%
IVUS	2529	↑ 63%
OCT	238	↓ 40%

adjunct pharmacotherapy was observed both for STEMI (prehospital: 6.4%, in-hospital: 11.2%) and NSTEMI (prehospital: 2%, in-hospital: 9.6%) with the use of prasugrel < 0.5%. PCI complications during PCI are presented in Table II – the values remain stable throughout the years of observations.

In 2017 a significant, over 60%, increase of modern imaging and diagnostic techniques like intravascular ultrasound (IVUS) and fractional flow reserve (FFR) was observed, which is related to the optimization of PCI procedures in Poland, especially in complex lesions (Table III). On the other hand, we have observed a 40% decrease in optical coherence tomography (OCT) use. Perhaps it would be advisable to include OCT in the package of IVUS/FFR reimbursement in order to maintain its use.

Concerning extracardiac procedures, there were 1033 transcatheter aortic valve implantation (TAVI), 450 left atrial appendage occlusion (LAAO) and 94 MitraClips in 2017. Additionally, we recorded 65 subclavian and 39 vertebral artery stentings, 375 patent foramen ovale (PFO), 229 atrial septal defect (ASD).

In conclusion, there was a significant decrease in the total number of both coronary angiographies and PCIs in Poland in 2017, a trend which has been observed since

2015, and for the first time also an absolute decrease in the number of catheterization laboratories. The use of modern antiplatelet drugs and percutaneous techniques for the treatment of structural heart disease is growing but seems to be still insufficient. It is worth noting that the financial reimbursement policies seem to play a key factor in the utilization of guideline-recommended diagnostic and therapeutic procedures.

Data presented in this publication represent registry input from 161 catheterization laboratory centers in Poland. Not all catheterization laboratories report full data to the ORPKI database as of 2017.

Conflict of interest

Wojciech Wojakowski: lecture honoraria Abbott. Other authors declare no conflict of interest.

References

1. Kleczyński P, Siudak Z, Dziewierz A, et al. The network of invasive cardiology facilities in Poland in 2016 (data from the ORPKI Polish National Registry). Kardiol Pol 2018; 76: 805-7.
2. Legutko J, Siudak Z, Parma R, et al. Poland: coronary and structural heart interventions from 2010 to 2015. EuroIntervention 2017; 13: Z51-4.
3. Ochała A, Siudak Z, Legutko J, et al. Percutaneous interventions in cardiology in Poland in the year 2014. Summary report of the Association of Cardiovascular Interventions of the Polish Cardiac Society AISN PTK. Adv Interv Cardiol 2015; 11: 177-81.